

**MICHIGAN STATE**  

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**UNIVERSITY**

**Project Plan Presentation**  
**Intelligent Ticketing and Release**  
**Management**  
**The Capstone Experience**

**Team WK Kellogg Co**

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Spring 2025



*From Students...  
...to Professionals*

*WK Kellogg Co*

# Project Sponsor Overview

- Fortune 500 cereal manufacturer with 2.7B annual sales (2023)
- Based in Battle Creek, Michigan
- In 2023, Kellogg Co split into Kellonova & WK Kellogg Co
- Owns brands like Frosted Flakes, Fruit Loops, Rice Krispies and MorningStar Farms
- Estimated that 283 million consumers eat boxed cereal every morning (2020)



# Project Functional Specifications

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- Improve IT Ticket Management System
- By Using AI and Various Cloud Services
- And Optimize Release Notes Management
- By Automating Update Tracking
- On Amazon Web Services




# Project Design Specifications

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- Web App for Submitting and Tracking IT Tickets
- AI-Driven Analysis for Automatic Ticket Prioritization and Routing
- Web Scraped Automated Alerts for Relevant Company Wide Software Updates



# Screen Mockup: Web Interface



Create Ticket

### Create/Update Ticket Record

**Incident Number**  
INC154301

**Ticket Info**  
Requester: Alex Gale (alex.gale@wkellogg.com)  
Date & Time: 1/29/2025 4:16 PM  
Location: Battle Creek, Michigan  
Best Contact Number: +1269111222

AI Assigned Priority Level: P1  
AI Category: Account Access  
AI Subcategory: No Access to Business Essential Website  
Response Time: 01/29/2025 3:16 PM  
Resolve Time: 01/29/2025 11:16 PM

**Subject**  
IT Team Member 1

**Assigned To**  
Sawyer VanDyke

**Category**  
Other

**Subcategory**  
Other

**Short Description**  
My current sign in for vendor orders is locked out. Error message to contact admin.

**Long Description**  
I need to order intermediate goods for the increased production of Limited Time Offer(LTO) of WK Kellogg Co's Peeps Cereal. The goods must be ordered by the end of the business day to have a shipment sent to meet approaching deadline.

P1  P2  P3  P4

Save Ticket Record



# Screen Mockup: Ticket Submission

IT Ticket #184301 has been successfully completed!



Our AI bot has determined that IT Ticket #184301 is a low-priority issue. This ticket will have a response time of seven days and a resolution time of fourteen to twenty-one days. You can edit your ticket if it requires a higher or lower priority.

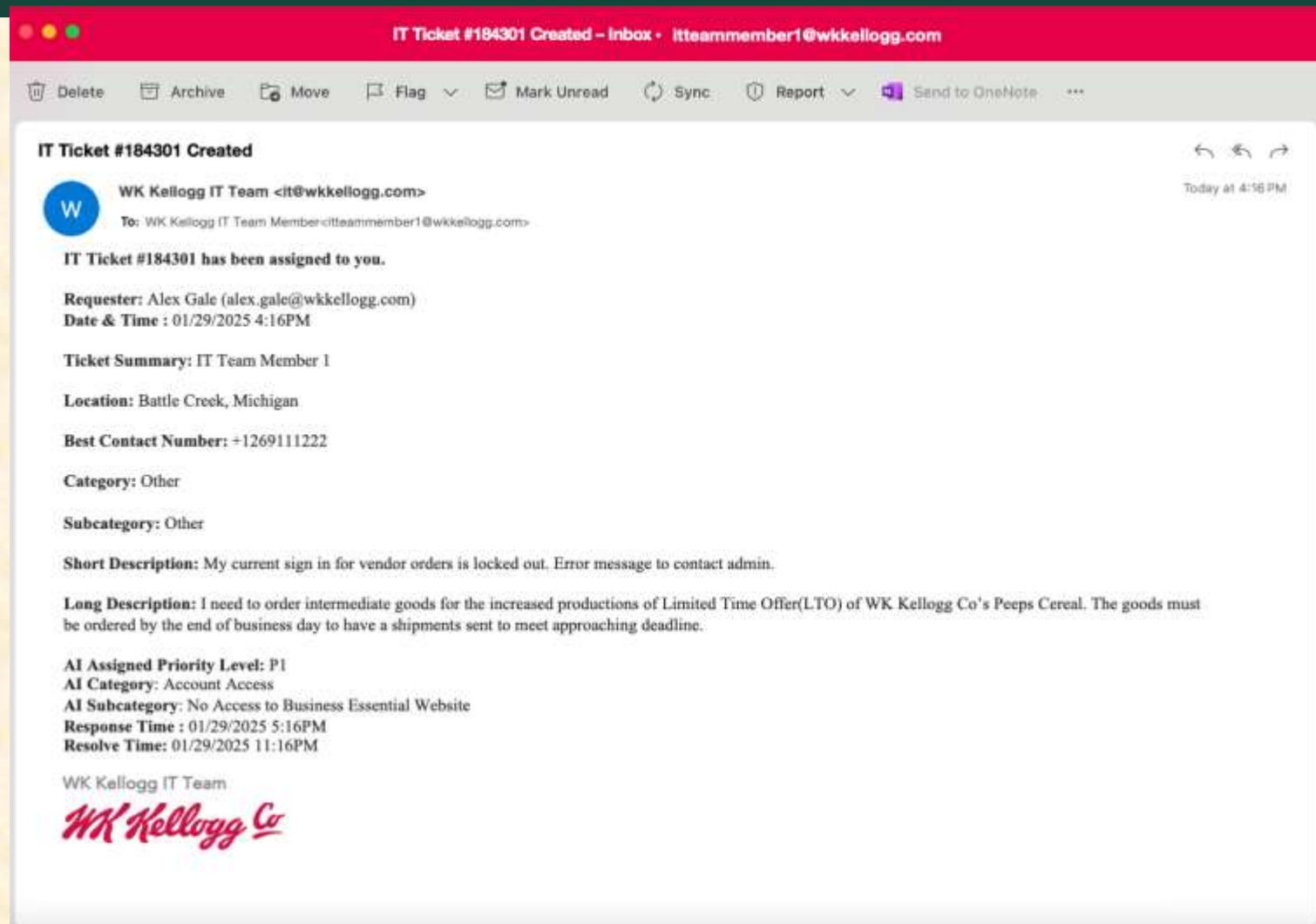
Edit Ticket

Complete Submission

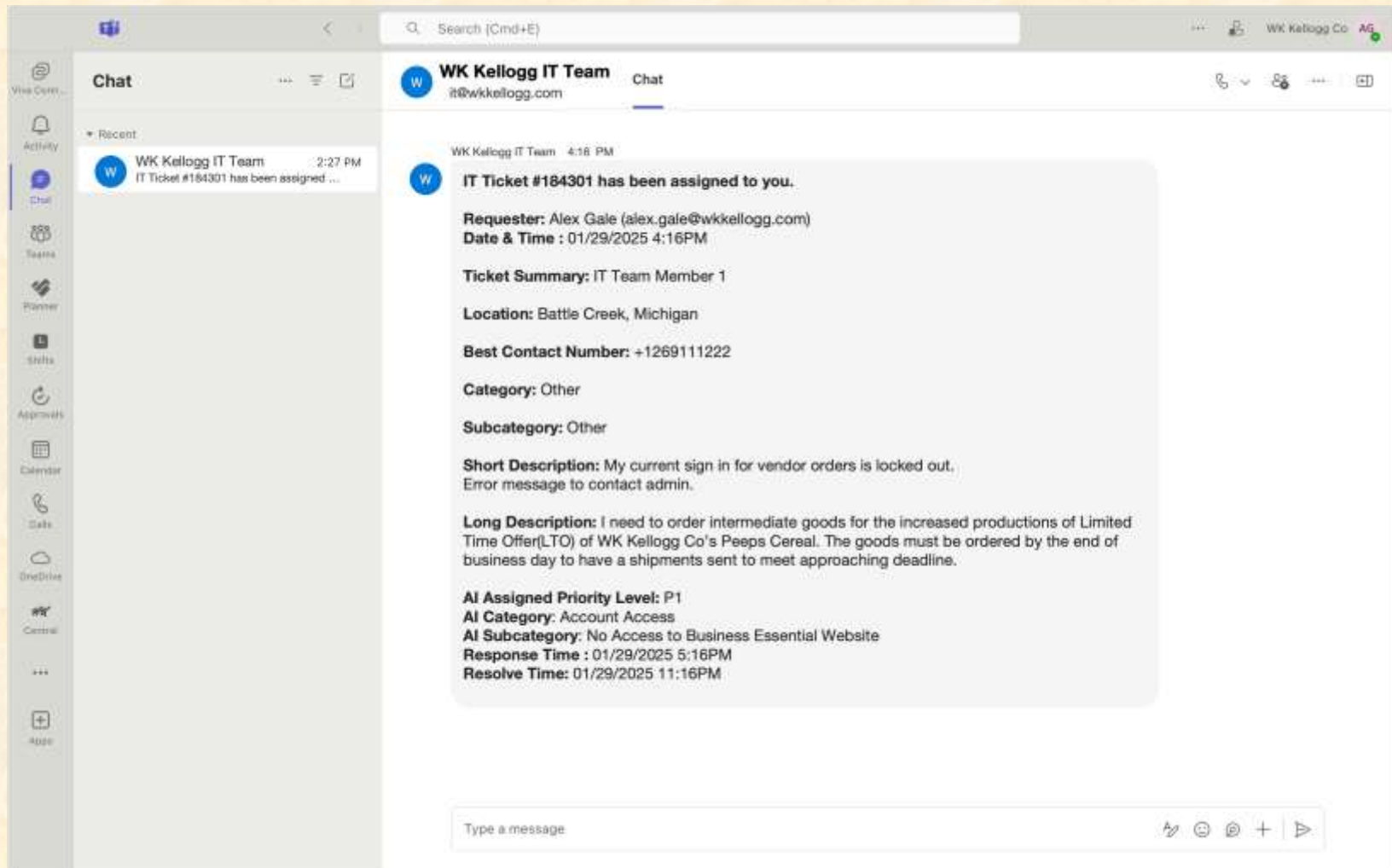




# Screen Mockup: Ticket Creation Email




# Screen Mockup: Ticket Creation Teams





# Screen Mockup: Web Interface



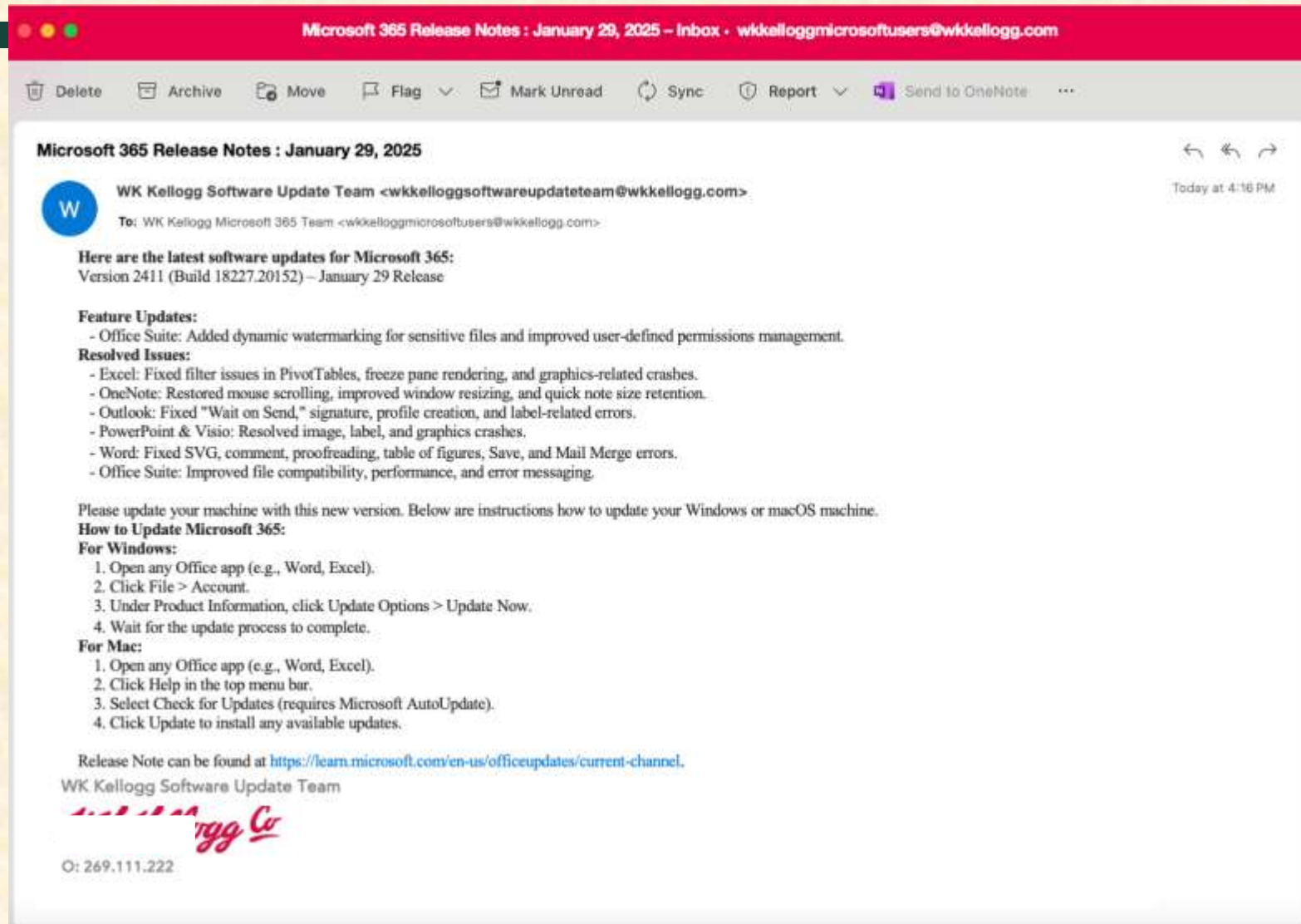
Create Ticket

### Ticket Records

Incident Number	Assigned To	Priority	Short Description	Action
INC1234567	Jon Snow	P1	This is a short description of the ticket.	<a href="#">Edit</a> <a href="#">Delete</a>
INC2345678	Denerys Targaryen	P2	This is a different short description of a ticket.	<a href="#">Edit</a> <a href="#">Delete</a>
INC3456789	Jon Snow	P2	This is another different short description of a ticket.	<a href="#">Edit</a> <a href="#">Delete</a>
INC4567890	Jon Snow	P4	This is another different short description of a ticket.	<a href="#">Edit</a> <a href="#">Delete</a>



# Screen Mockup: Release Notes Email



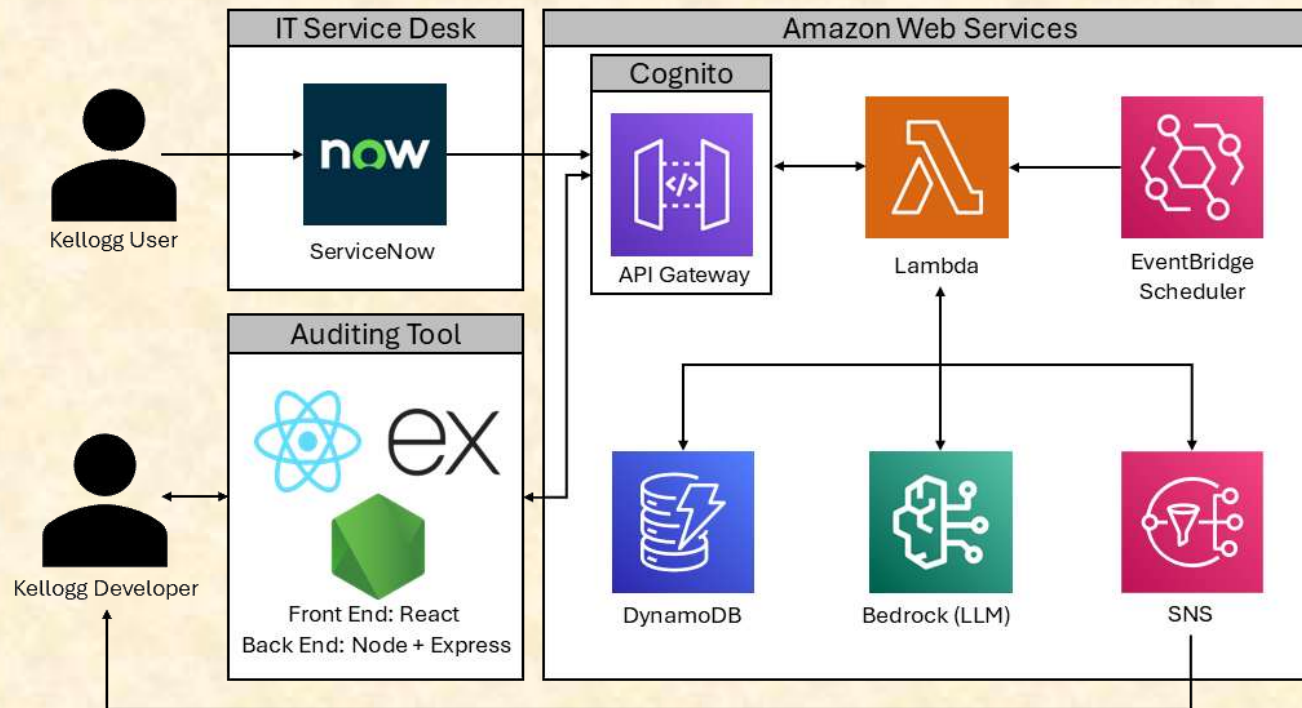
# Project Technical Specifications

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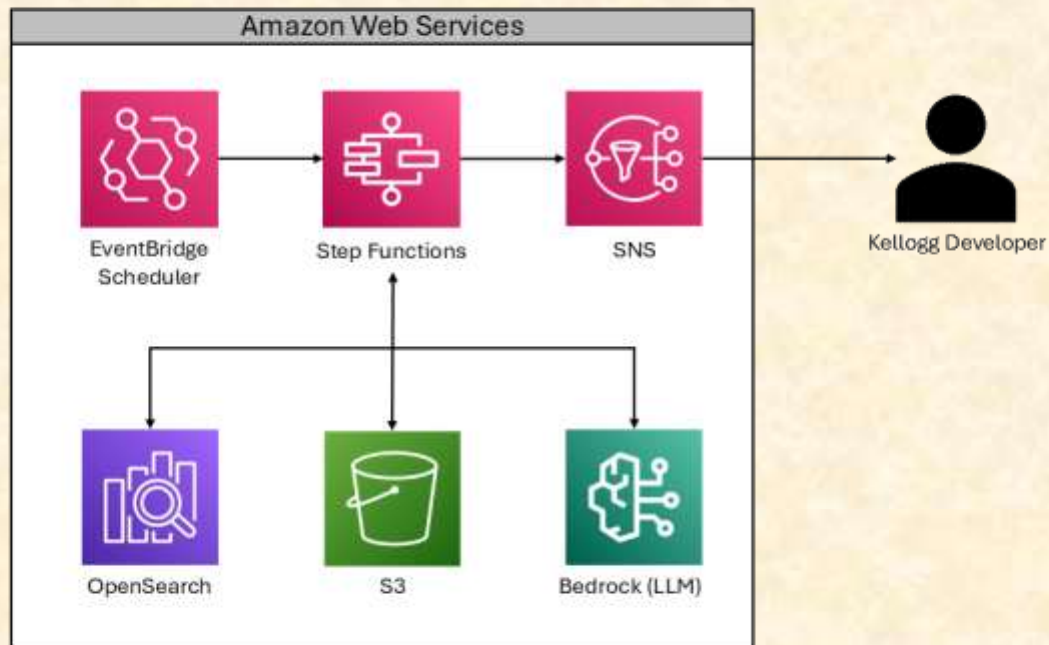
- Python
- React.js
- Node.js
- Express.js



# Project System Architecture



# Project System Architecture



# Project System Components

- Software Platforms / Technologies
  - AWS API Gateway
  - AWS Lambda
  - AWS Bedrock
  - AWS DynamoDB
  - AWS SNS
  - AWS EventBridge Scheduler
  - Office 365





# Project Risks

- LLM Prediction Accuracy
  - Should have at least 90% accuracy when giving predictions
  - Train the LLM using historical data and client given key words
- Data Security
  - Kellogg's private data should be protected
  - Utilize HTTPS to transfer data and Amazon Cognito User Pools to handle authentication and security
- Low Traffic Web Crawling
  - Minimize traffic on vendor sites
  - Schedule short, precise crawling runs and store scraped data in S3
- Automatically Resolve Low Priority Tickets
  - AI-generated solutions to some lowest priority (P4) tickets
  - Identify examples of common problems that warrant automatic resolution and engineer prompt for LLM to identify and solve them



# Questions?

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